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EVALUATION OF SLIMPAK STYLE PARACHUTE IN CT4A AIRTRAINER AIRCRA--ETC(U)
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ROYAL AUSTRALIAN AIR FORCE

AIRCRAFT RESEARCH AND DEVELOPMENT UNIT ✓

(9) FLIGHT TEST REPORT.

(6) EVALUATION OF SLIMPAK STYLE PARACHUTE IN CJ4A AIRTRAINER AIRCRAFT.

(12) 28 p.

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ACTION AUTHORITY

The report is for the communication of information and is not an authority. Any action required within the RAAF will be authorized by Headquarters Support Command.

APPROVED

FOR PUBLIC RELEASE

AIRCRAFT RESEARCH AND DEVELOPMENT UNIT

TECHNICAL INVESTIGATION NO 556

EVALUATION OF SLIMPAK STYLE PARACHUTE IN CT4A AIRTRAINER AIRCRAFT

SUMMARY

The Slimpak style parachute was being evaluated, under Technical Investigation 517, for use in place of the standard 'Flexible Back' parachute which had proven unsatisfactory in helicopter operations when worn by large crew members. Some instructors and students of No 1 Flying Training School, of rather large build, were unable to wear the Flexible Back parachute in the CT4A Airtrainer because of restriction to control column deflection.

Headquarters Support Command considered that the Slimpak style parachute might be suitable for use in the Airtrainer by the large crew members and ARDU was directed to investigate this possibility.

Ground and flight trials were conducted using a wide range of aircrew sizes. Dropping trials were carried out under Technical Investigation 517. The 'Slimpak' model parachute as tested was found to be unacceptable for use in the Airtrainer by aircrew with a buttock to heel length of less than about 1.02 m. It was also found to have major deficiencies in design and operation of the harness and associated buckles that would render it unsuitable in its present form for use by the RAAF in any other aircraft.

LIST OF CONTENTS

EVALUATION OF SLIMPAK STYLE PARACHUTE IN CT4A AIRTRAINER AIRCRAFT

References: A. Technical Investigation No 556

B. AC 167 - Detail Specification for Airtrainer CT4A - Light Fixed Wing Trainer for RAAF

INTRODUCTION

1. Reference A instructed Aircraft Research and Development Unit (ARDU) to evaluate the Slimpak style parachute for aircrew use in CT4A Airtrainer aircraft. The task was instigated because a number of the larger aircrew at No 1 Flying Training School (1FTS) could not apply full aileron (due to thigh interference) while wearing the standard parachute as used in the Airtrainer.

CONDITIONS RELEVANT TO THE TESTS

Test Aircraft

2. Airtrainers A19-027 and A19-031 were used during the tests; both were standard production aircraft. Throughout the tests, the aircraft were each flown by two aircrew, both wearing Slimpak style parachutes.

Standard Parachute

3. The standard parachute used in the Airtrainer was the Irvin Standard Air Chute Type Flexible Back and the aircrew stations had been designed for this parachute as specified in Reference B.

Slimpak Style Parachute

4. The Slimpak style parachutes evaluated were two identical 'SLIMPAK' models, manufactured by Parachute Australia of 407 Kent Street Sydney, and had been fitted with RAAF M14 24 foot (7.26 metre) diameter canopies at 1FTS. Photographs, weight and dimensions of the Slimpak parachute are shown in Annex A, pages 1 and 2.

Aircrew Percentiles

5. A wide range of aircrew sizes was covered during the tests. Aircrew percentiles quoted in this report are based on the Anthropometric Survey of 2000 RAF Aircrew 1971.

/Weather,

Weather, Time and Place of Tests

6. Three flights were made during late April and early May 1976, from RAAF Laverton by four ARDU pilots and one navigator for a total of 5.0 hours. This included a three hour navigation exercise and two hours of general flying to cover all phases of flying training. A further three ARDU pilots evaluated the Slimpak parachute while carrying out continuation training and other flight tests involving the Airtrainer for a total of about 10 hours. The cockpit temperature range during the tests was -5° to $+21^{\circ}$ Celsius.

7. Project Officer. The Project Officer was a qualified Test Pilot with approximately 1800 flying hours including about 20 hours on Airtrainer aircraft. He had experience in paradropping troops and equipment from Caribou aircraft and had previously carried out a parachute training jump.

TESTS MADE

8. The following tests were carried out:

a. Donning;

b. Doffing;

c. Compatibility with Safety Equipment;

d. Compatibility with Aircraft Cockpit and Flying Task;

e. Modified Aircraft Seat Cushion; and

f. Dropping Trials.

RESULTS OF TESTS

Donning

9. The Slimpak parachute was fairly easy to don after minimal experience. Areas of significant note are covered in paragraphs 10 to 13.

10. Harness Buckles. The majority of wearers found the fastening operation of the harness buckles slightly awkward. Each buckle was positioned at chest level and required two hands to fasten it. Furthermore, it was possible to place the locking bar of the buckle in an intermediate position. If the locking bar was left in any position other then the fully locked position, lifting of the lower part of the buckle would invariably release the buckle mechanism. Incorrect locking was not always obvious and on one occasion an aircrew member discovered that the incorrect condition existed while strapping into the aircraft before flight. In this instance the buckle had remained fastened while he had boarded the aircraft. Various stages of partial and complete locking are shown in Annex B.

11. Harness Mis-routing. For correct donning, the two thigh straps were routed between the legs, thence outwards to the appropriate side loops and across the body to the buckles. It was possible to inadvertently cross these straps

/as they

as they were pulled between the legs and subsequently attach them to the incorrect buckles. Because of the remote area in which the crossing took place this error was difficult to detect.

12. Ripcord Handle Access. With the parachute correctly adjusted, the ripcord handle was situated approximately on the left hip as shown in Annex C. Aircrew members who wore the parachute experienced moderate difficulty in reaching the ripcord handle with their right hand. The degree of difficulty was dependent on the combination of certain body dimensions; waist, arm length and sitting height. The most critical combination was determined to be a person with a large sitting height and waist measurement coupled with relatively short arms.

13. Walking. When the harness was fastened and adjusted, the lower harness straps chafed the inner side of the thighs and made walking fairly difficult. This was overcome by either leaving the harness very loose or leaving the lower harness straps unfastened. If the lower straps were left unfastened, be held to prevent them from dragging on the ground.

Doffing

14. Slight difficulty was experienced in doffing the parachute harness even under ideal conditions. Significant problem areas are covered in paragraphs 15 and 16.

15. Harness Buckles. The parachute harness had two buckle attachment points and was therefore a two-point-release system. The harness buckles were fairly difficult to release with either one or two hands. It was easier to release each buckle with the hand of the opposite side (ie releasing the left buckle with the right hand and vice versa). Two actions were required to release each buckle, the first to unlock and slide the locking bar upwards and the second, to separate the two components of the buckle. The releasing procedure is shown in Annex D. Care had to be exercised to prevent accidental relocking of the sliding bar as the hand was moved to twist the buckle apart. The buckles were difficult to release at night when they could not be seen and up to 30 seconds was required for this operation.

16. Harness Routing. When the harness buckles were released, the lower harness straps fell away, but hung from the side loops and did not easily feed through of their own accord on every occasion. Annex E shows the lower straps hanging from the side loops.

Compatibility with Safety Equipment

17. The parachute was worn with standard RAAF flying clothing and Airtrainer safety equipment. Tests were conducted both with and without the RFD Life Preserver Vest Mk 8 fitted. The parachute harness was placed under the lobes of of the life preserver vest, when it was worn; this allowed inflation of the vest without removing the harness. However, when the harness was worn in this manner interference between the harness and the life preserver lobes compounded the difficulty of releasing the harness buckles (see para 15).

Compatibility with Aircraft Cockpit and Flying Task

18. The Airtrainer was equipped with two non-adjustable seats which had to be fitted with a range of different size seat cushions and spacers to accommodate

/different pilot

different pilot sitting heights. The rudder pedals were adjustable fore and aft through a range of 115mm.

19. Control Column/Thigh Interference. The Slimpak parachute allowed an increase in legroom compared with the standard Flexible Back parachute. On larger aircrew who had the rudder pedals adjusted fully forward when using the Flexible Back, the increase in legroom had the effect of lowering and moving rearwards, the knees and thighs. This in turn reduced the degree of control column/thigh interference. This is shown in Annex F. On smaller aircrew, the increase in legroom demanded a more aft adjustment of the rudder pedals (about 20 mm). However, for those aircrew who had the rudder pedals adjusted fully aft when wearing the standard Flexible Back, the increase in legroom meant that they could no longer obtain full rudder pedal deflection and brake. This affected those aircrew with a buttock to heel length of less than about 1015 - 1035 mm (approximately 12% of pilots).

20. Shoulder and Instrument Panel Dimension. The more aft position of the aircrew member's torso when wearing the Slimpak resulted in an increase in the shoulder to instrument panel dimension. This reduced the accessibility of instrument panel mounted switches and controls such as the rudder trim switch, compass heading selector, radio controls etc. Aircrew with shorter arms found it very difficult or impossible to reach some or all of these switches and controls when the aircraft inertia reel harness was locked. There was also a reduction in the accessibility of the throttle, propeller and mixture controls especially when they were positioned near their respective forward travels. The accessibility of the throttle, propeller and mixture controls designated for the starboard aircrew station was slightly worse when used from that station than that of the port controls when used from the port station because the stations were not identical.

21. Comfort. The lateral curvature across the back of the Slimpak parachute conformed more to the shape of the aircraft seat back than did the rounded shape of the standard Flexible Back parachute. The Slimpak afforded greater stability and allowed the aircrew member to sit more squarely and firmly located in the seating position. The design of the Slimpak was such that it required the wearer to sit on part of the packing. In the Airtrainer, this had the effect of lifting the wearer's thighs clear of the seat cushion and concentrating his torso weight solely on the buttocks. The packing behind the wearer's shoulders was slightly thicker than that behind his lower back and provided very little support in the lumbar area. After about one hour of flight, soreness was felt in the thighs and lumbar region and numbness was apparent in the buttocks. After three hours of straight and level flying the pain and numbness had increased to a moderate level and started to infringe on the flying task. This was evidenced by a deterioration in flying accuracy and mental alertness beyond that normally attributed to demands of flying.

22. Seating Height. The wearer sat on part of the Slimpak parachute and this effectively raised his seating height by about 20 mm. Seating height could be adjusted by varying the size and quantity of metal spacers and seat cushions. However, if the aircrew member's sitting height measurement (buttock to head dimension) required the use of one seat cushion only when wearing the Flexiback parachute, there would be no means available of a compensating adjustment (other than to remove the cushion entirely) and this would result in a decrease in available headroom.

/Modified

Modified Aircraft Seat Cushion

23. Because of the problems raised by lack of comfort and headroom (see paras 21 and 22), a new aircraft seat cushion was designed and constructed at ARDU. This cushion was based on the standard aircraft type but with a cut-out to accommodate the lower part of the Slimpak on which the wearer sat. The design of this cushion is shown in Annex G page 1 and an actual cushion shown in place in the aircraft in Annex G page 2.

24. Cushion Filling. The modified cushion filling was made out of a low density foam rubber because the higher density material which was required was not readily available.

25. Seating Height. The cushion allowed a decrease in seating height when compared with the standard seat cushion and this effect is shown on a double exposed photograph in Annex G page 3. The seating height obtained with the Slimpak and the modified cushion, equated very closely with that obtained with the standard Flexiback and standard aircraft cushion (all other seat spacers remaining equal).

26. Thigh Support. The modified seat cushion allowed some increase in thigh support, but this was limited due to the low density cushion filling used (para 24).

Modified Slimpack

27. During the investigation a Slimpak parachute was modified by Headquarters Support Command (HQSC) in an attempt to overcome the parachute's deficiencies. These modifications included:

a. the fitting of a quick release buckle (QRB);

b. modifying the lower harness straps to a fixed length with no adjustment;

c. fitting adjustable upper harness straps; and

d. extending the ripcord handle position on a length of material which was attached to the QRB.

A photograph of the modified Slimpak is shown in Annex H.

28. Assessment of Modifications. The modified parachute was fitted to four large aircrew at 1FTS Point Cook. The range of adjustment available was inadequate to allow correct fitting to all of the four aircrew. The additional piece of material, to which the ripcord handle was attached, passed over the SARBE radio unit in the life vest pocket and caused the ripcord handle to protrude. Improved relocation of the ripcord handle would require the manufacture of longer ripcord cables.

Dropping Trials

29. Dropping trials of the Slimpak parachute were carried out under Technical Investigation (TI) 517; Evaluation of Slimpack Style Parachutes for Aircrew Use in Helicopters. The more pertinent features of these dropping

/trials are

trials are contained in paras 30 to 32.

30. Canopy. The Slimpak was initially fitted with a 26 foot (7.87 m) diameter, conical canopy that was supplied with the pack and the first two drops were made with this canopy. The Slimpak was later fitted with the RAAF 24 foot (7.26 m) diameter canopy which was to become standard and all subsequent drops were made with this canopy.

31. Modifications. To cater for the low speed/altitude drops which might occur from helicopters, the Slimpak was modified in an effort to reduce time to full deployment and height lost. These modifications were the addition of pack opening elastics and an anti-squid line.

32. Summary of Drops. A summary of the drops is shown in Table 1. All drops were carried out from 500 feet AGL.

Drop No (a)	Drop Aircraft (type) (b)	Speed (KIAS) (c)	Canopy (type) (d)	Mods (e)	Time to full Deploy (secs) (f)
1	Dakota	90	26ft Conical	Nil	3.0
2	Dakota	120	26ft Conical	Nil	1.9
3	Dakota	90	24ft RAAF	Nil	2.5
4	Dakota	135	24ft RAAF	Nil	2.6
5	Iroquois	60	24ft RAAF	Nil	3.3
6	Iroquois	110	24ft RAAF	Nil	2.3
7	Iroquois	Hover	24ft RAAF	Nil	5.2
8	Iroquois	Hover	24ft RAAF	Pack Elastic and Anti-Squid	4.25
9	Iroquois	Hover	24ft RAAF	Anti-Squid	4.0
10	Iroquois	Hover	24ft RAAF	Pack Elastic	4.75
11	Iroquois	110	24ft RAAF	Quick Release Harness	3.2

TABLE 1 - SUMMARY OF DROPS

DISCUSSION OF RESULTS

Donning

33. Harness Buckles. The awkward fastening operation of the harness buckles was not likely to cause undue problems because the parachute is donned prior to boarding the aircraft. At worst, it would cause a slight delay. The awkward fastening operation was unsatisfactory but acceptable. The possibility of incomplete locking of the harness buckle and that it could easily be overlooked, could result in a fatal accident, if an abandonment was subsequently attempted in flight. The fact that incomplete locking could easily be achieved and was not obvious was unacceptable.

/34. Harness

34. Harness Mis-routing. If the harness was crossed between the legs, it would be very likely to cause injury to the wearer's genitals if the parachute was used. As it was not obvious when crossing occurred, this aspect was unsatisfactory. The harness should be modified to prevent inadvertent crossing and possible injury.

35. Ripcord Handle Access. A ripcord handle should fall easily to hand under all conditions. Under ideal conditions the ripcord handle on the test parachute was somewhat difficult to reach. Under emergency conditions of an actual abandonment, the situation could be compounded by darkness, frozen fingers or movement of the harness on the wearer's body, to an extent where location of the ripcord could be delayed or may become impossible. Delay in locating the ripcord handle could have fatal consequences whereas not finding it at all would make death a certainty. This, therefore, was unacceptable and modification is essential before the parachute could be safely introduced into RAAF Service.

36. Walking. The ease of walking with the harness straps loosened or unfastened was satisfactory.

Doffing

37. Harness Buckles. The difficulty in releasing the harness buckles, even in ideal conditions, meant that in wind speeds of greater than about 10 knots, the wearer would be dragged over the ground or water for a considerable period. This period of dragging would be extended because the harness had two buckles which both had to be released to collapse the canopy and free the wearer. The estimated minimum time to release the harness if the wearer was being dragged on his back would be about 7-10 seconds. In wind speeds of greater than about 20 knots, dragging across rough terrain could quickly incapacitate the wearer such that the task of releasing the buckles may become impossible. Likewise, being dragged face down in water could quickly disable a wearer before he had released himself (this was considered likely even with an inflated survival vest). Other conditions which were likely to delay harness release were darkness, wet flying gloves, harness buckles hidden under the inflated lobes of the life vest and injury to arms or body received during aircraft abandonment or on impact with the ground. The harness buckles were unacceptable and must be replaced by a system capable of being operated single handedly with either hand that will allow quick release under all conditions.

38. Harness Routing. Because the lower harness straps did not always positively disengage, there was a distinct possibility of the straps fouling. In this case the wearer could be dragged in the harness even with the harness buckles released. This was unsatisfactory and the straps should be modified. This modification would involve an extensive re-design of the harness adjustment and routing.

Compatibility with Safety Equipment

39. It was desirable to be able to inflate the life preserver vest while wearing the parachute harness. This would allow the body to be supported while disentanglement from the parachute was carried out, should it occur during entry to water. The interference effect of the life preserver vest with the harness buckles was unsatisfactory and should be eliminated by modification.

/Compatibility

Compatibility with Aircraft Cockpit and Flying Task

40. Control Column/Thigh Interference. The increase in legroom and decrease in control column/thigh interference for the larger aircrew when wearing the Slimpak, was satisfactory. However, for the smaller aircrew, who could no longer obtain full rudder pedal deflection and brake simultaneously, the increase in legroom was unacceptable. In this case the aircrew member could no longer exercise full control over the aircraft under all circumstances, with obvious flying safety implications.

41. Shoulder to Instrument Panel Dimension. The reduced accessibility of the controls and switches was unsatisfactory. However, if the use of the Slimpak was restricted to those larger aircrew who suffer control column/thigh interference when using the standard Flexiback, the reduced accessibility would not be as marked and, while still unsatisfactory, would be acceptable. The reduced accessibility would not be as marked because the larger aircrew involved would, by their nature, probably have a greater functional reach.

42. Comfort. Because the lack of comfort reduced flying accuracy and mental alertness after about one hour, the ability of a student pilot to absorb knowledge and skills would be reduced. This was unsatisfactory for a training aircraft. A limitation in flying time per sortie would need to be imposed or the students would have to be accepted with a lower level of expertise at the end of their initial training. Alternatively, the level of comfort could be improved by the use of a modified aircraft seat cushion.

43. Seating Height. Aircrew with a large sitting height may not be able to achieve a correct seating height with the range of seat cushions and spacers available, while wearing the Slimpak. Apart from the ergonomics involved in operating at a too high seating height, an increase in the incidence of canopy scratching from helmets would probably occur. This was unsatisfactory and a modified aircraft seat cushion should be used by aircrew with a large sitting height when wearing the Slimpak.

Modified Aircraft Seat Cushion

44. The modified seat cushion remedied the seating height problem. The increase in thigh support was less than expected because of the low density filling used. It was reasonable to expect a significant increase in thigh support if future modified cushions have a higher density filling and this would improve the level of comfort.

Modified Slimpak

45. The limited range of adjustment would mean (in effect), that each parachute would have to be modified individually to fit the wearer. This was considered impracticable because of expense and also the likelihood of damage to the parachute harness each time it was re-modified. The protruding angle of the ripcord handle was unsatisfactory but could probably be overcome by re-siting the handle and lengthening the material to which it was attached. This would necessitate the manufacture of ripcord cables which were longer than the standard cables fitted.

/Dropping Trials

Dropping Trials

46. Although all dropping trials were successful and satisfactory, the trials conducted under TI 517 showed that some improvement in deployment time and, consequently, height lost was obtained by incorporating pack opening elastics and an anti-squid line. It is highly desirable that these modifications are incorporated in Slimpak parachutes, if they are designated for use in RAAF CT4A Airtrainer aircraft. These modifications would allow maximum safety if the parachute was operated close to the ground.

CONCLUSIONS

Unacceptable Features

47. The Slimpak parachute, as tested, was unacceptable for service use by the RAAF in any aircraft because of deficiencies in design and operation of the harness buckles and also because of the remote position of the ripcord handle. The Slimpak was unacceptable for use in the CT4A Airtrainer by aircrew with a leg length of less than about 1022-1035 mm (10-15 percentile); the overriding factor was the inability to apply full rudder and brake simultaneously. The following modifications and procedures were considered essential and should be implemented before the Slimpak would be acceptable for service use.

48. Harness Buckles. The harness buckles were unacceptable and must be replaced by a system that would allow the following:

a. Quick release under all conditions (para 37);

b. Single-handed operation with either hand (para 37);

c. Could not be set to a dangerous condition (para 33); and

d. Would provide obvious indication when the system was correctly locked or unlocked (para 33).

49. Ripcord Handle Position. The remote position of the ripcord handle was unacceptable and must be re-positioned so that it is easily accessible under all conditions (para 35).

50. Aircrew Limitation. Once modified, use of the Slimpak by aircrew in the Airtrainer must be limited to those aircrew who can apply full rudder pedal deflection and brake simultaneously while wearing the parachute and at the same time correctly strapped in the flying position (para 40).

Unsatisfactory Features

51. In addition to the modifications in paras 47-50, it was highly desirable that the following features should be implemented to make the Slimpak satisfactory for aircrew use on Airtrainer aircraft:

a. Harness Buckles. The harness buckles should be modified to include a single-point-release system (para 33).

/b. Harness.

b. Harness. The harness should be modified to preclude the possibility of injury to the wearer. The harness should be further modified to allow the lower straps to disengage more rapidly and positively (para 34 and 38).

c. Modified Seat Cushion. Modified seat cushions should be manufactured and used in conjunction with the Slimpak to increase headroom for large aircrew and improve comfort (paras 42, 43 and 44).

d. Aircrew Limitation. The Slimpak should be restricted to use by those larger aircrew who experience control column/thigh interference when wearing the standard Flexiback parachute (para 41).

e. Modifications. The Slimpak should be modified to incorporate pack opening elastics and an anti-squid line (para 46).

Slimpak Re-Design

52. The modifications suggested in this section are extensive and change the concept of the Slimpak design. Therefore, as modification of the Slimpak would involve a re-design, this work should preferably be carried out by the manufacturer (Parachute Australia).

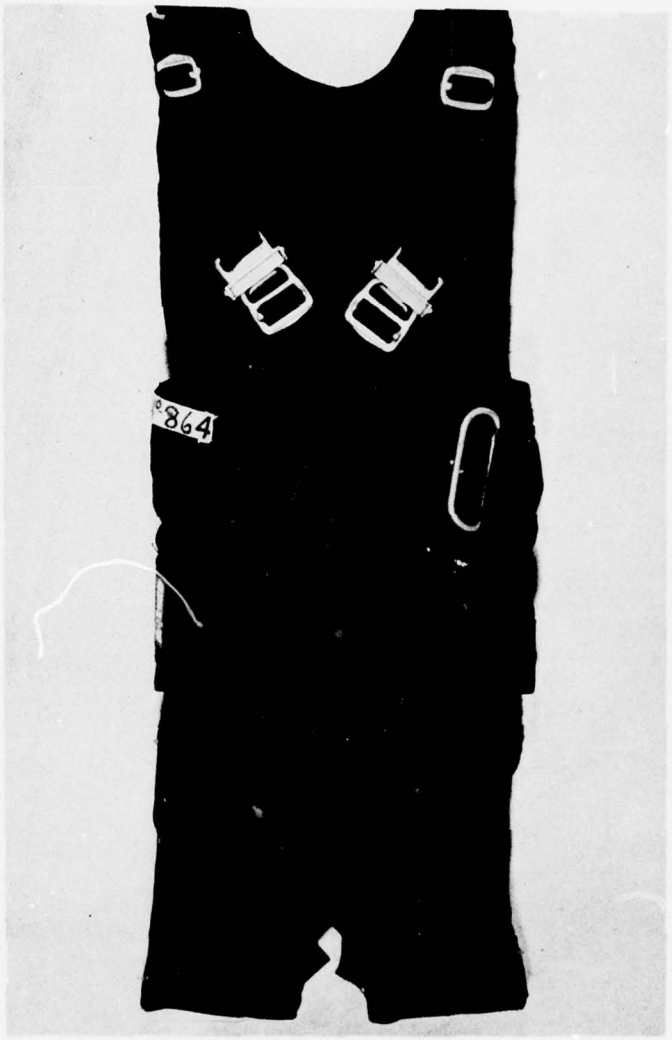
53. If the Slimpak harness is re-designed to make it compatible with the Airtrainer cockpit and Safety Equipment, the aircrew limitation mentioned in para 50 would probably still apply, unless the seating geometry of the aircraft was changed to include fore and aft and vertical adjustment.

DETAIL

Project Officer	:	FLTLT M.J. HAYLER
Report No	:	TI 556
HQSC File No	:	3000/7/1-556
ARDU File No	:	2535/2/556/Tech

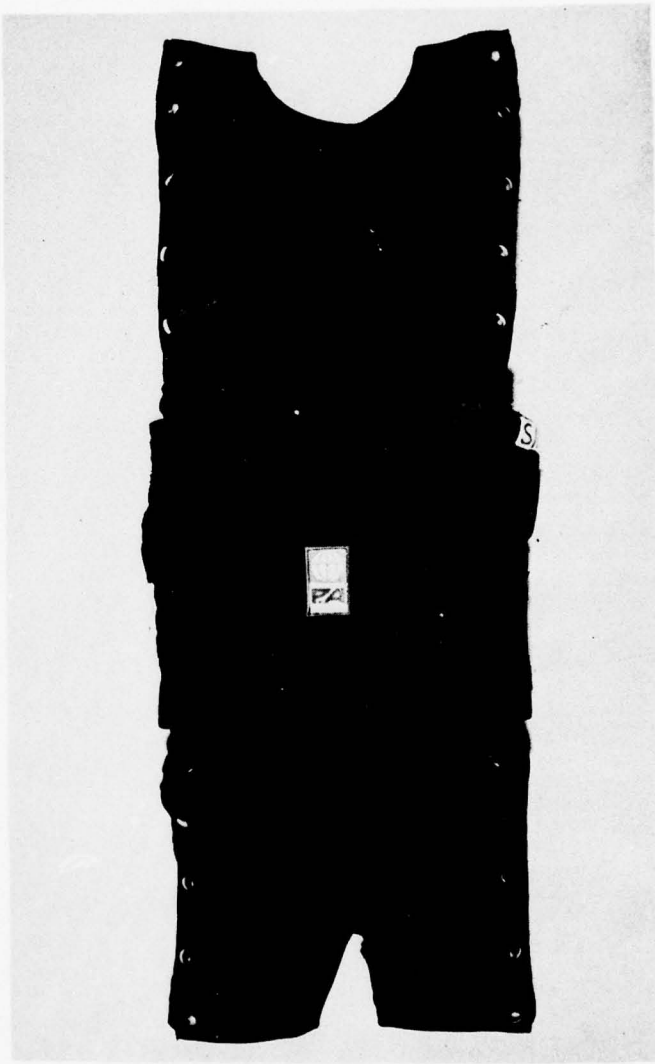
ANNEX A TO
REPORT NO TI 556

PHOTOGRAPHS WEIGHT AND DIMENSIONS OF THE SLIMPAK PARACHUTE



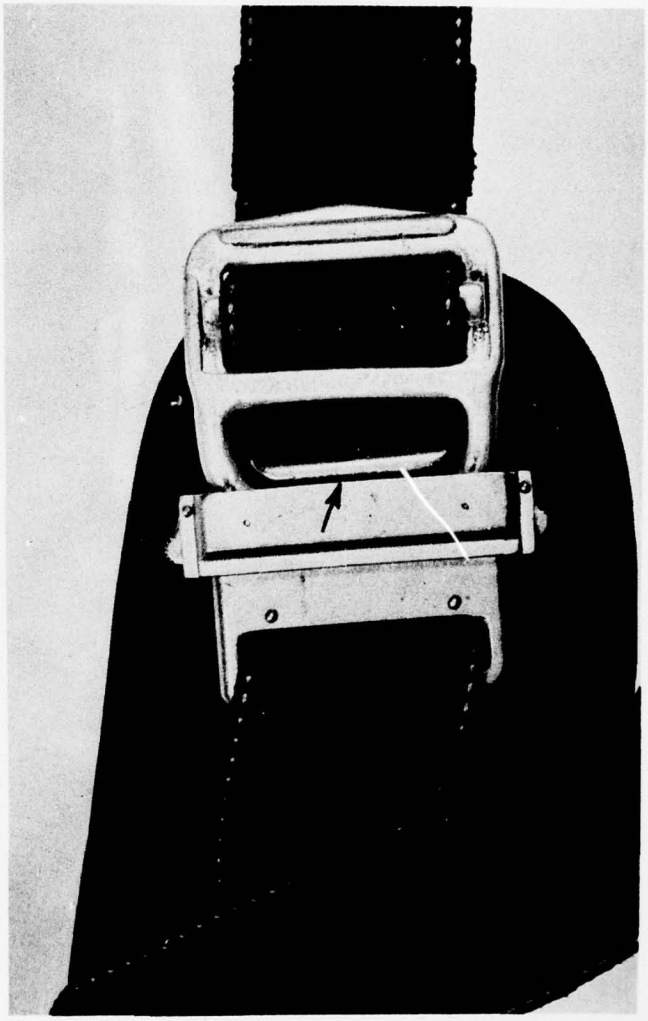
Length: 1015 mm
Breadth: 355 mm
Weight: 8.28 kg

ANNEX A



Length: 1015 mm
Breadth: 355 mm
Weight: 8.28 kg

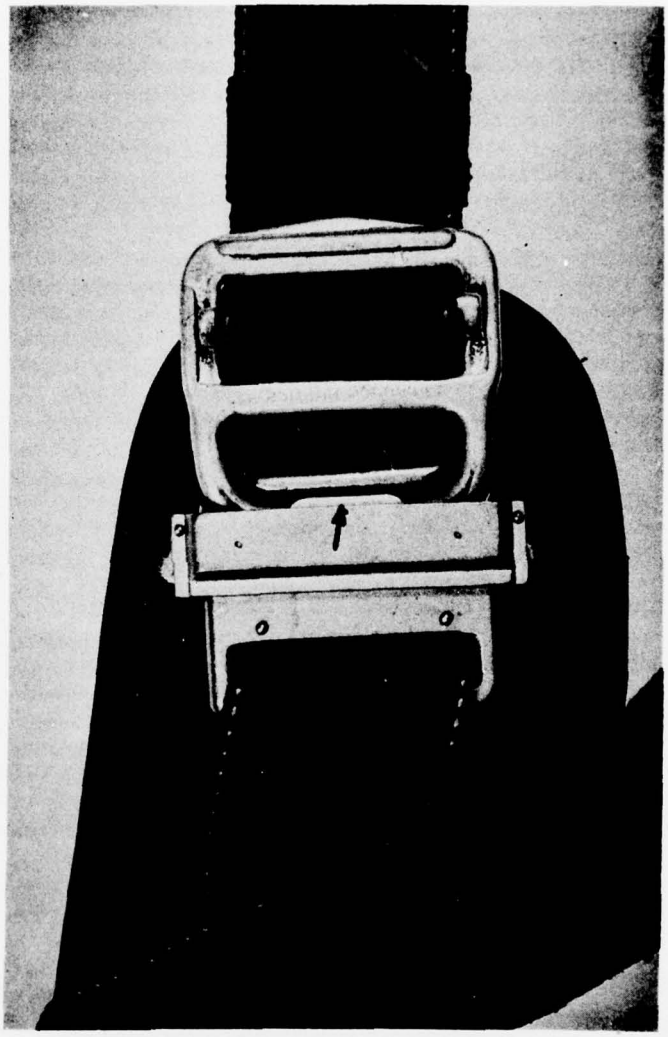
PARTIAL AND COMPLETE HARNESS BUCKLE LOCKING



FULLY LOCKED

NOTE: Locking bar fully down.

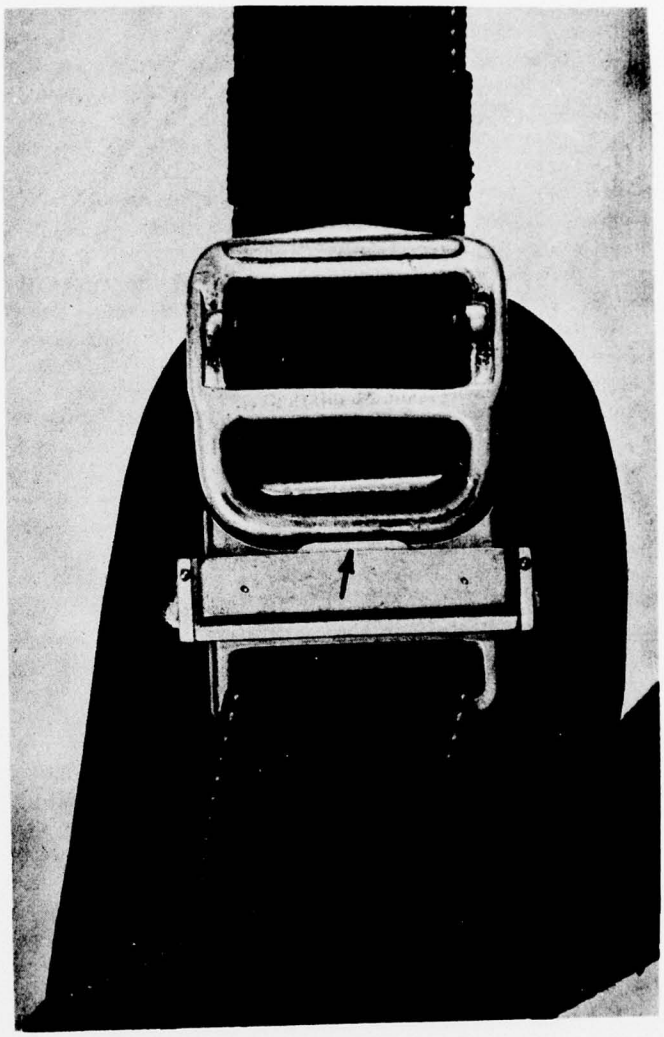
ANNEX B



PARTIALLY LOCKED

NOTE: Locking bar not fully down.

ANNEX B



UNLOCKED

NOTE: Locking bar fully up,

RIPCORD POSITION AND ACCESS

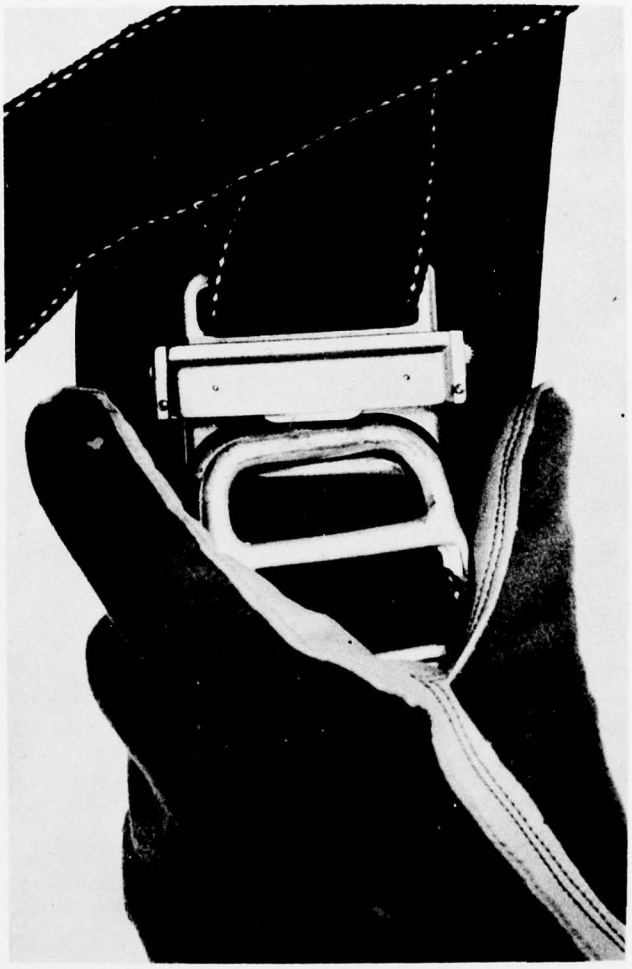
RELEASING PROCEDURE FOR HARNESS BUCKLE

1. Unlocking buttons are pressed

ANNEX D

2. Locking bar is slid fully upwards

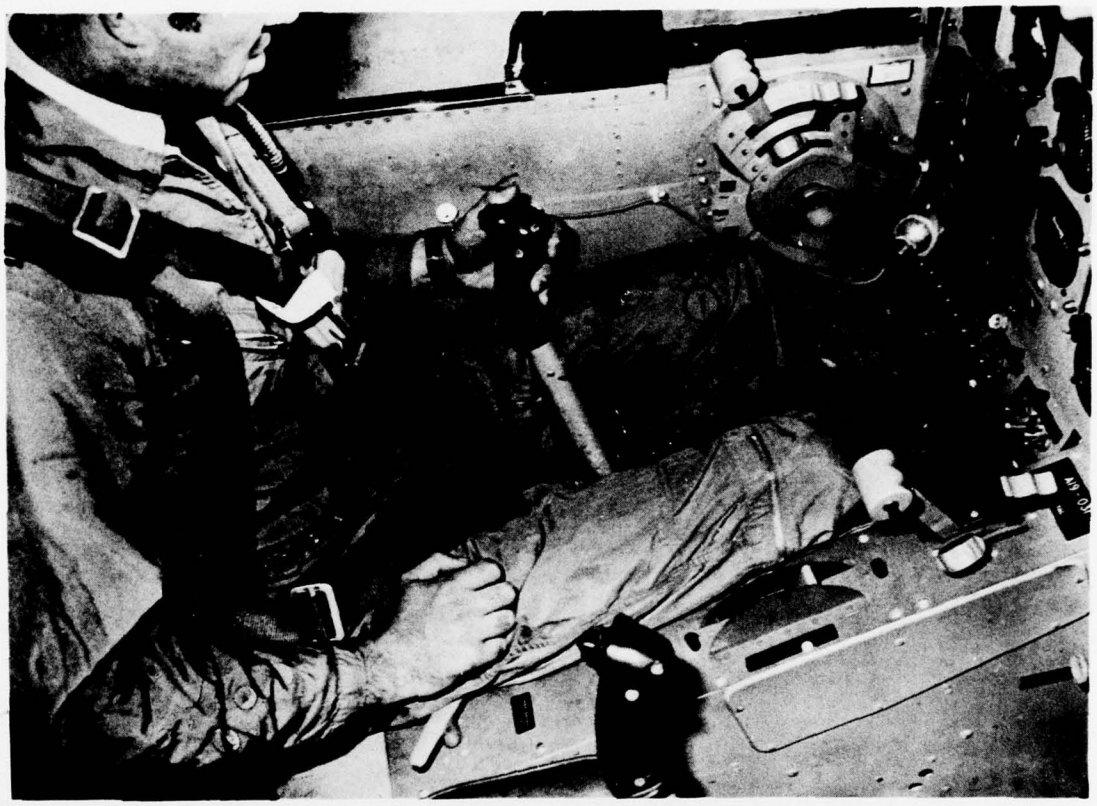
ANNEX D



3. Lower part of the buckle is twisted away

LOWER HARNESS STRAPS HANGING FROM SIDE LOOPS

LEGROOM AVAILABLE WHEN WEARING THE STANDARD FLEXIBLE BACK AND SLIMPAK TYPE PARACHUTES



STANDARD FLEXIBLE BACK TYPE PARACHUTE

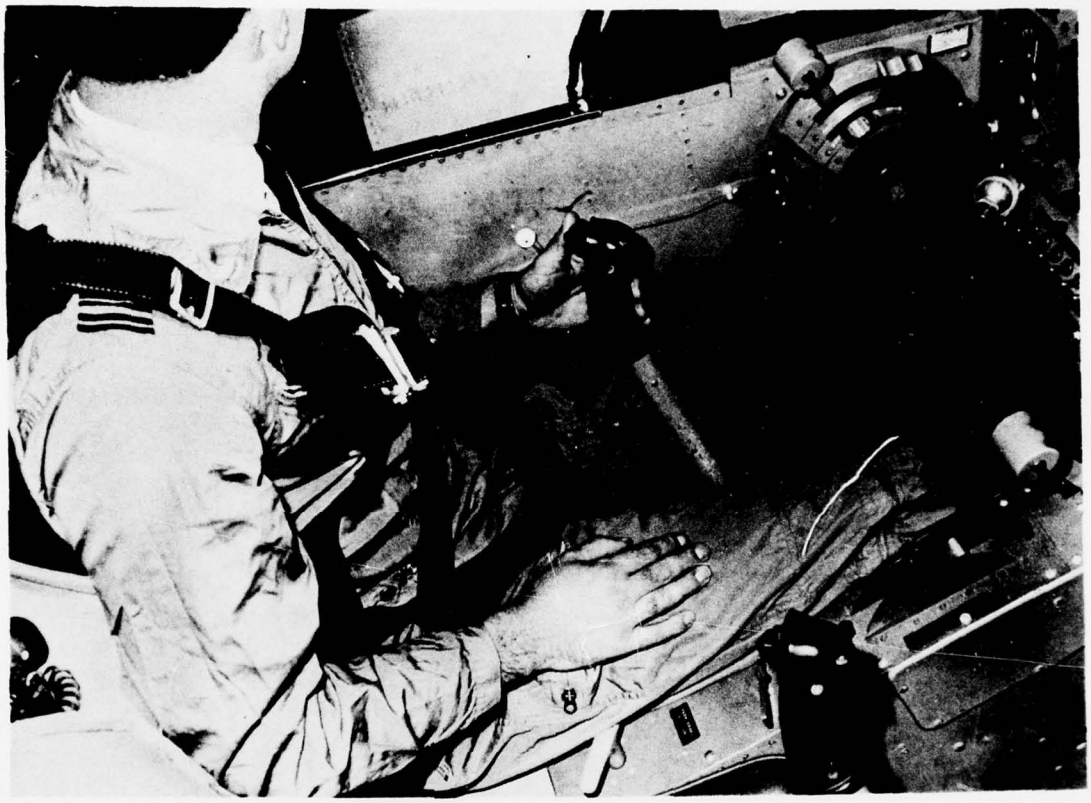
NOTE: 1. Left knee fouled flap guard

2. Control column fouled thigh when held fully aft and 80% left aileron applied

CONDITIONS: 1. Member had 80 percentile leg length (1135 mm)

2. Rudder pedals were adjusted fully forward

ANNEX F



SLIMPAK TYPE PARACHUTE

NOTE: 1. Left knee clear of flap guard

2. Full aft stick and aileron applied without restriction

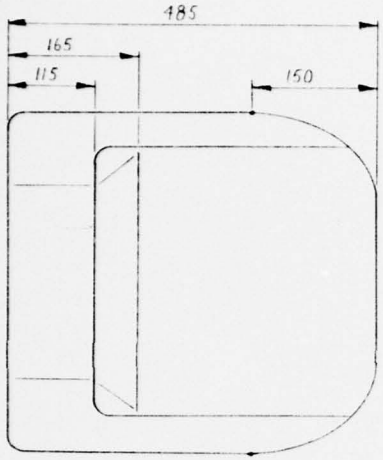
CONDITIONS: 1. Member had 80 percentile leg length

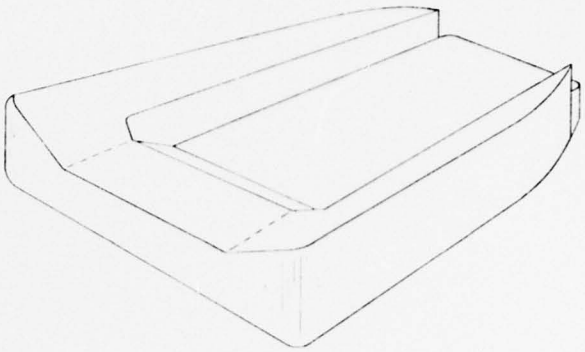
2. Rudder pedals adjusted fully forward

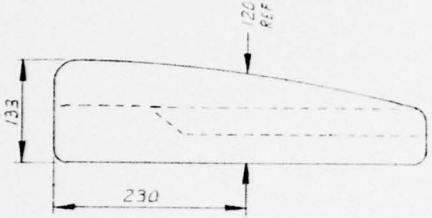
DRAWING NO 7610286000 | DO NOT SCALE | PROJECTION

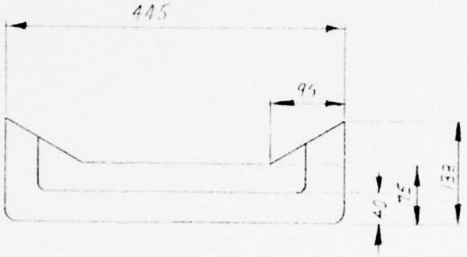
ISSUE	DATE	REVISION	APPROVED
1	[illegible]		

USED ON CT4A
TI556









ITEM	PART NO	DESCRIPTION	QTY REQ

DIMENSIONS IN MM
LIMITS UNLESS STATED
WHOLE NUMBERS ± 1
DECIMALS ±
ANGLES ±

MATERIAL SPEC TREATMENT

CONTRACTOR

CONTRACTOR'S REF NO

DRAWN B LEWIS
CHECKED
APPROVED APPT
DRAWING PRACTICE TO DEF (AUST) 85

ROYAL AUSTRALIAN AIR FORCE
ARDU

TITLE
MODIFIED SEAT CUSHION

CODE IDENT NO

DRAWING NO 7610286000

SCALE 1/5

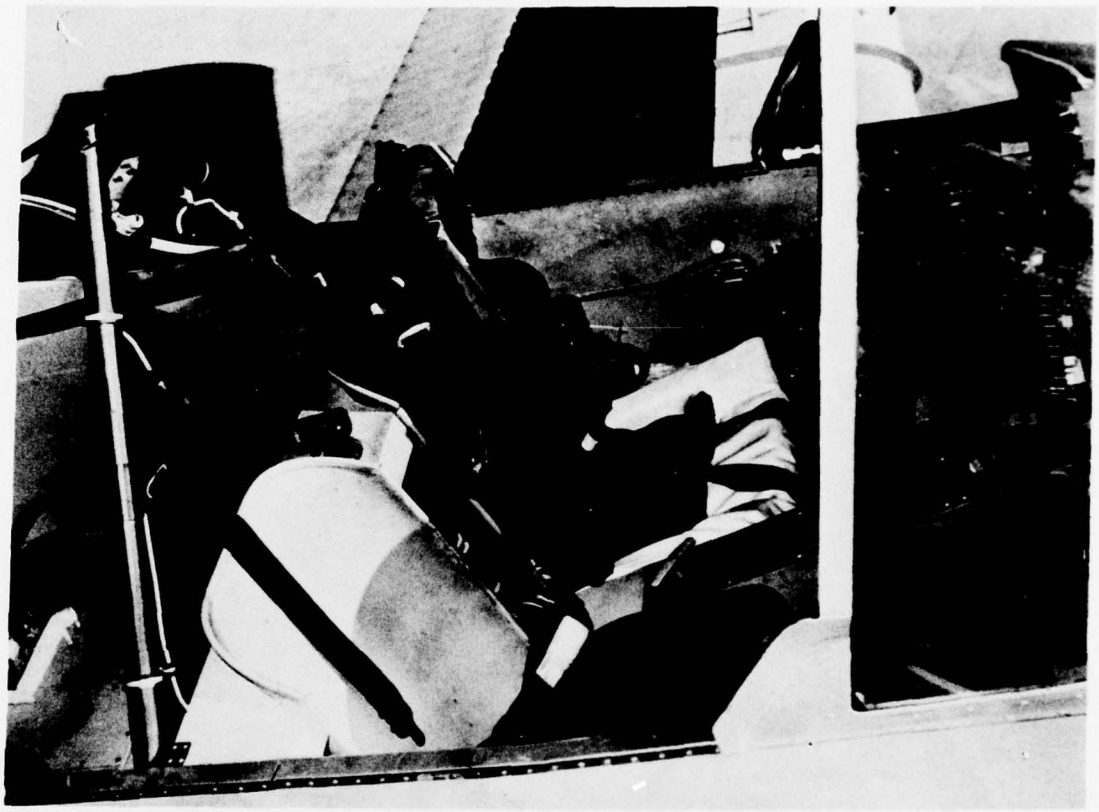
SHEET SIZE A3

MODIFICATION

S35 7530-66-086-9878

ANNEX G TO
REPORT NO TI 556

ANNEX G



MODIFIED SEAT CUSHION WITH SLIMPAK IN POSITION

ANNEX G

COMPARISON OF SEATING HEIGHTS WHEN USING
THE STANDARD AND THE MODIFIED AIRCRAFT
SEAT CUSHIONS WHEN WEARING THE SLIMPAK 'CHUTE

MODIFIED SLIMPAK

AIRCRAFT RESEARCH AND DEVELOPMENT UNIT

TECHNICAL INVESTIGATION NO 556

EVALUATION OF SLIMPAK STYLE PARACHUTE IN CT4A AIRTRAINER AIRCRAFT

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